IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strikethrough~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

Please AMEND claim 24 and CANCEL claims 1, 5, 8, 11-12, and 14-23 in accordance with the following:

1-23. (Cancelled)

24. (Currently Amended) A computer readable medium encoded with a computer program for supporting design of a piston shape of an engine, said program being executed by a computer to perform:

inputting specification values defining a crown type and shape of a piston;

reading out an intake-side piston model having an intake-side recess, and an intake valve model from a database, which stores a plurality of intake-side piston models and a plurality of exhaust-side piston models, independently, in accordance with crown types of the piston;

deforming the intake-side piston model using the specification values input in the inputting, so as to prevent interference between the intake-side recess and the intake valve model;

further reading out an exhaust-side piston model having an exhaust-side recess, and an exhaust valve model from the database;

further deforming the exhaust-side piston model using the specification values input in the inputting, so as to prevent interference between the exhaust-side recess and the exhaust valve model; and

combining the deformed intake-side piston model and the deformed exhaust-side piston model.

25. (Previously Presented) The computer readable medium encoded with a computer program according to claim 24, wherein the intake-side and exhaust-side piston models are segmented in accordance with symmetry, and

the deforming includes combining the intake-side and exhaust-side piston models, and mirroring the combined model in accordance with the symmetry.

26. (Previously Presented) The computer readable medium encoded with a computer program according to claim 24, wherein the specification values include crown types indicating if a surface of the piston on a combustion chamber side has a convex or recess shape.

27. (Previously Presented) The computer readable medium encoded with a computer program according to claim 24, wherein the deforming includes:

deforming, when dimensions associated with the entire piston are input as the specification values, both the intake-side and exhaust-side piston models in correspondence with each other.

28. (Previously Presented) The computer readable medium encoded with a computer program according to claim 24, wherein said program is executed by a computer to further perform displaying a piston model obtained by combining the intake-side and exhaust-side piston models in the deforming while hiding connected surfaces of the intake-side and exhaust-side piston models.

29. (Previously Presented) The computer readable medium encoded with a computer program according to claim 24, wherein the intake-side recess included in the intake-side piston model and the exhaust-side recess included in the exhaust-side piston model use different shape determination rules upon determining shapes of the intake-side and exhaust-side recesses on the basis of a recess depth input as the specification value.

30. (Previously Presented) The computer readable medium encoded with a computer program according to claim 29, wherein the inputting includes inputting an intake-side recess depth and an exhaust-side recess depth, and

the shapes of the intake-side and exhaust-side recesses are determined to have different slopes of bottom surfaces even when identical values are input as the intake-side and exhaust-side recess depths in the inputting.

31. (Previously Presented) The computer readable medium encoded with a computer program according to claim 29, wherein the inputting includes inputting an intake-side recess depth and an exhaust-side recess depth, and

the shapes of the intake-side and exhaust-side recesses are determined to have different

curvatures of corners formed by bottom surfaces and side surfaces thereof even when identical values are input as the intake-side and exhaust-side recess depths in the inputting.

32. (Previously Presented) The computer readable medium encoded with a computer program according to claim 29, wherein when the intake-side and exhaust-side recess depths input in the inputting have changed, the shape of the intake-side recess is determined to change at least one of a slope of a bottom surface and a curvature of a corner formed by the bottom surface and a side surface thereof, but the shape of the exhaust-side recess is determined to change neither of a slope of a bottom surface and a curvature of a corner formed by the bottom surface and a side surface thereof.

33. (Previously Presented) The computer readable medium encoded with a computer program according to claim 24, wherein the inputting includes inputting a target compression ratio as the specification value, and

the deforming includes deforming the piston model in accordance with the target compression ratio input in the inputting.

34. (Previously Presented) The computer readable medium encoded with a computer program according to claim 33,wherein said program is executed by a computer to further perform:

calculating a compression ratio of the piston model deformed in the deforming, and

wherein a piston shape closest to the target compression ratio input in the inputting is determined by repeating the deforming and the compression ratio calculation.

35. (Previously Presented) A computer readable medium encoded with a computer program for supporting design of a piston shape of an engine, said program being executed by a computer to perform:

inputting specification values defining a piston shape;

reading out a main body piston model, which represents a shape of a surface of the piston, from a database, which stores a plurality of main body piston models and a plurality of space models independently;

deforming the main body piston model using the specification values input in the inputting;

further reading out a space model, which represents a space shape to be carved out from the main body model, from the database;

further deforming the space model using the specification values; and

carving out the deformed space model from the deformed main body piston model.

36. (Previously Presented) The computer readable medium encoded with a computer program according to claim 35, wherein the space model includes a skirt inner space model which represents a shape inside a skirt of the piston.

37. (Previously Presented) The computer readable medium encoded with a computer program according to claim 35, wherein the space model includes a skirt outer space model which represents a shape of a skirt outer surface of the piston.

38. (Previously Presented) The computer readable medium encoded with a computer program according to claim 35, wherein the space model includes a pin hole space model which represents a shape of a pin hole that receives a pin used to hold a connecting rod.

39. (Previously Presented) The computer readable medium encoded with a computer program according to claim 35, wherein the inputting includes inputting dimensions of the entire piston as the specification values, and

the deforming includes deforming the main body model and the space model in accordance with the dimensions of the entire piston, and shaving the space model from the main body model.

40. (Previously Presented) The computer readable medium encoded with a computer program according to claim 36, wherein the inputting includes inputting a thickness of the piston as the specification value, and

the deforming includes shaving the skirt inner space model from the main body model while laying out the skirt inner space model at a position separated from the main body model by a distance corresponding to the thickness input in the inputting.

41. (Previously Presented) The computer readable medium encoded with a computer program according to claim 36, wherein the inputting includes inputting dimensions that determine a shape of the skirt inner space model, and a minimum thickness of the piston as the specification values, and

the deforming includes producing error information or performing re-deformation when a thickness of a piston model generated by deforming the skirt inner space model in accordance

with the specification values input in the inputting, and shaving the skirt inner space model from the main body model becomes not more than the minimum thickness.

42. (Previously Presented) The computer readable medium encoded with a computer program according to claim 35, wherein the main body model includes an intake-side piston model which includes an intake-side recess formed to prevent interference with an intake valve, and an exhaust-side piston model which includes an exhaust-side recess formed to prevent interference with an exhaust valve, and

the deforming includes deforming both the intake-side and exhaust-side piston models and combining the deformed intake-side and exhaust-side piston models.

43. (Previously Presented) The computer readable medium encoded with a computer program according to claim 42, wherein the intake-side and exhaust-side piston models are segmented in accordance with symmetry, and

the deforming includes combining the intake-side and exhaust-side piston models, and mirroring the combined model in accordance with the symmetry.

44. (Previously Presented) The computer readable medium encoded with a computer program according to claim 36, wherein the inputting includes inputting a target compression ratio as the specification value,

the skirt inner space model includes a portion that represents a space shape of a crown back surface, and

the deforming includes increasing a curvature of the crown back surface of the skirt inner space model with increasing target compression ratio input in the inputting.

45. (Previously Presented) The computer readable medium encoded with a computer program according to claim 36, wherein the inputting includes inputting a pin boss gap as the specification value,

the skirt inner space model includes a portion that represents a space shape of a crown back surface, and

the deforming includes increasing a curvature of the crown back surface of the skirt inner space model with decreasing pin boss gap input in the inputting.

46. (Previously Presented) The computer readable medium encoded with a computer program according to claim 36, wherein the inputting includes inputting a skirt inner

diameter as the specification value,

the skirt inner space model includes a portion that represents a space shape of a crown back surface, and

the deforming includes increasing a curvature of the crown back surface of the skirt inner space model with decreasing skirt inner diameter input in the inputting.